



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/633,473	08/07/2000	Kishan B. Shah	1151	4627

5514 7590 04/05/2004

FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER

DASTOURI, MEHRDAD

ART UNIT PAPER NUMBER

2623

DATE MAILED: 04/05/2004

13

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/633,473

Applicant(s)

SHAH, KISHAN B.

Examiner

Mehrdad Dastouri

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-12 and 14-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-12 and 14-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 8, 2004 has been entered.

Response to Amendment

2. Applicant's amendments filed February 4, 2004 have been entered and made of record.

3. Applicant's arguments have been fully considered but they are not persuasive. Applicant's statement that the teachings of Cushman et al (Prior art of record) are human-based recognition is not clear. Prior art of record (Cushman et al) explicitly disclose recognition of text areas from graphic areas (and recognizing each character in the text area) by scanning the document 10 depicted in Figure 1, and performing the methodology disclosed in Column 5, Lines 10-14. As it is well known in the art, scanning is a machine-based optical recognition device that recognizes the foreground objects of a document (text, graphics, etc.) from the document background. Analogous analysis is also applicable to the teachings of the publications referred to in Column 1, Lines 41-56 of Cushman's invention.

Furthermore, based on the teachings of U.S. Patent 5,050,222 (Lee), which is incorporated by reference in Cushman's invention (Column 5, Lines 10-14), there is a clear suggestion that the characters recognized by the methodology of Cushman's invention are ready for converting into computer understandable ASCII characters, or the narrowest specific interpretation of OCR.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-5, 7-10 and 12-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cushman et al (U.S. 5,905,820) in view of Solberg et al (U.S. 6,134,338).

Regarding Claim 1, Cushman et al disclose a method of optical character recognition of at least one character object in a digitized representation of an image (Column 1, Lines 23-56; Column 5, Lines 10-14. Based on the teachings of U.S. Patent 5,050,222 (Lee), which is incorporated by reference in Cushman's invention, the characters recognized by the methodology of Cushman's invention are ready for converting into computer understandable ASCII characters, or the narrowest specific interpretation of OCR.), the method comprising the steps of:

receiving the digitized representation of the image, the representation having a first resolution (Figure 2, Step 24);

creating a reduced-resolution version of the image from the digitized representation of the image, the reduced-resolution version of the image having a second resolution lower than the first resolution (column 2, Lines 3-6; Figure 2, Step 30; Column 3, Lines 65-67, Column 4, Lines 1-7);

identifying at least one character-recognition parameter for character recognition processing of the received digitized representation of the image at the first resolution, based on using the reduced resolution version of the image at the second resolution (Figure 2, Step 34; Figures 9 and 10; Column 4, Lines 11-22; Column 5, Lines 10-34. Threshold sets $t_1=32$, $t_2=64$ and $t_3=128$ are examples of recognition parameters utilized for discriminating different types of text); and

optically character recognition processing (i.e., conventional optical scanning depicted in Figure 1) the digitized representation of the image at the first resolution, based at least on the identified optically processed character recognition parameter, so as to character-recognize the at least one character object (Figures 4-7, 9 and 10; Column 5, Lines 10-67, Column 6, Lines 1-18).

Cushman et al disclose utilizing versions of the digitized representation of the document image having different reduced resolution for general-purpose character recognition. Furthermore, the characters recognized by the methodology of Cushman's invention are ready for converting into computer understandable ASCII characters, or the narrowest specific interpretation of OCR (Column 5, Lines 10-14).

However, Cushman et al do not explicitly disclose recognizing characters using OCR.

Solberg et al disclose a method of converting a digitized raster image of a scanned source document and recognizing the characters in the documents by OCR (Abstract; Figure 1A, STEP 4, Recognize text with OCR).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Cushman et al invention in accordance with the teachings of Solberg et al to utilize OCR for character recognition because it is a well known methodology routinely implemented in character recognition to provide digital computer compatible codes. This methodology will provide more reliable recognition results and will improve the accuracy of the recognition system.

Arguments analogous to those presented for Claim 1 concerning recognition of characters in the recognized text are applicable to the following Claims 2-5, 7-12 and 14-19.

Rejection of Claims 2- are based on the teachings of Cushman et al in combination with the teachings of Solberg et al concerning the OCR in its narrowest interpretation as indicated in the rejection of Claim 1.

Regarding Claim 2, by incorporating Solberg's teachings as indicated in rejection of Claim 1, Cushman et al further disclose the method according to Claim 1 wherein said identifying step comprises the steps of:

providing a plurality of sets of at least one parameter (Figures 9 and 10; Column 5, Lines 35-57);

identifying each confidence level of character-recognition by performing OCR processing of the reduced-resolution version of the image the so as to attempt to

character-recognize the at least one character object based on the at least one parameter (Figures 4-7, 9 and 10; Column 5, Lines 10-67, Column 6, Lines 1-18. Confidence level of recognition is identified based on the frequency of different gray level values in an area under consideration. For text, confidence level of recognition comprises of large number of pixels with a very dark gray level and a large number of pixels with a very light gray level. A histogram with these characteristics provide a high confidence value for recognition of the text in the document.); and

selecting the at least one OCR parameter based on the confidence levels identified (Column 5, Lines 22-35).

Regarding Claim 3, Cushman et al further disclose the method according to Claim 2 wherein said selecting step comprises selecting the least one OCR parameter corresponding to a highest confidence level from a plurality of the confidence levels identified (Figures 4-7, 9 and 10; Column 5, Lines 10-67, Column 6, Lines 1-18).

Regarding Claim 4, Cushman et al disclose the method according to Claim 2 wherein said selecting step comprises selecting the at least one OCR parameter corresponding to a confidence level (Figures 4-7, 9 and 10; Column 5, Lines 10-67, Column 6, Lines 1-18).

Cushman et al do not explicitly consider the confidence level exceeding a threshold.

Identifying a threshold for the selected parameter confidence level is a normal procedure well known in the art (Official Notice).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Cushman et al and Solberg et al combination to identify a threshold for confidence level because it is the designer choice based on the experimental results that select the optimum parameter and will reduce the amount the data to be processed and expedite the processing time accordingly.

Regarding Claim 5, Cushman et al further disclose the method according to Claim 1 wherein said creating step creates the reduced version of the image by calculating an average of at least one value of a plurality of pixels of the digitized representation of the image (Column 2, Lines 3-6).

With regards to Claim 7, it is the standard procedure in iterative image processing to judge whether a confidence level of OCR is acceptable and repeat the iterative step of character recognition if the confidence level is not acceptable (Official Notice).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Cushman et al and Solberg et al combination to judge whether a confidence level of character recognition is acceptable and repeat the iterative step of character recognition if the confidence level is not acceptable because it is the conventional methodology routinely implemented in iterative processes.

With regards to Claim 8, arguments analogous to those presented for Claim 1 are applicable to Claim 8.

With regards to Claim 9, arguments analogous to those presented for Claim 2 are applicable to Claim 9.

With regards to Claim 10, arguments analogous to those presented for Claim 3 are applicable to Claim 10.

With regards to Claim 11, arguments analogous to those presented for Claim 4 are applicable to Claim 11.

With regards to Claim 12, arguments analogous to those presented for Claim 5 are applicable to Claim 12.

With regards to Claim 14, arguments analogous to those presented for Claim 7 are applicable to Claim 14.

With regards to Claim 15, arguments analogous to those presented for Claims 1 and 4 are applicable to Claim 15.

With regards to Claim 16, arguments analogous to those presented for Claim 2 are applicable to Claim 16.

With regards to Claims 17-19, arguments analogous to those presented for Claims 1, 4 and 7 are applicable to Claims 17-19. Cushman et al further disclose different types of gray scale thresholds (plurality of sets of parameters) for character-recognition (Figures 1 and 6-10; Column 3, Lines 21-28; Column 4, Lines 8-28).

Contact Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mehrdad Dastouri whose telephone number is (703) 305-2438. The examiner can normally be reached on Monday to Friday from 8:00 a.m. to 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703) 308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MEHRDAD DASTOURI
PRIMARY EXAMINER
Mehrdad Dastouri

Mehrdad Dastouri
Primary Examiner
Art Unit 2623
March 31, 2004